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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,738	01/16/2001	Hans Nusskern	39129-183650	7535

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EXAMINER

GARCIA, ERNESTO

ART UNIT	PAPER NUMBER
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3679

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,738

Applicant(s)

NUSSKERN ET AL.

Examiner

Ernesto Garcia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-34 and 36-62 is/are pending in the application.
- 4a) Of the above claim(s) 37-52, 54, 56, 57 and 59-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-34, 53, 55, 58 and 62 is/are rejected.
- 7) ☒ Claim(s) 55 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "stress-induced martensitic state" is not supported in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 31, 32, 34, 36, 53, 58 and 62 are rejected under 35 U.S.C. 102(b) as being anticipated by Renz et al., 5,197,720.

Regarding claim 31, Renz et al. disclose in Figure 4 a connecting element comprising an elastically deformable tensioning element 7 having a length in an axial direction. The tensioning element 7 further comprises a spring material consisting of a superelastic shape memory alloy (col. 5, line 46-54) and the tensioning element 7 is in a stress-induced martensitic state (Abstract, lines 10-17). Applicant is reminded that the

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element 7 radially expands by a force applied by conical threads 11 thus making the element stress-induced. Furthermore, the element is in the martensitic state as the force is applied (col. 2, lines 40-47).

The tensioning element 7 is adapted to apply a holding force in an elastically expanded state onto a constructive element 10 that is to be connected thus generating a frictional connection of the constructive element with the tensioning element or another constructive element. Furthermore, applicant is reminded that the memory alloy is elastically expandable in the tensioning element, and the constructive element is to be inserted in the axial direction of the tensioning element.

Regarding claim 32, the shape memory alloy is a nickel-titanium alloy (col. 4, line 51-53).

Regarding claim 34, applicant is reminded that bending forces or shear forces during an elastic expansion of the tensioning element 7 generates the holding force.

Regarding claim 36, applicant is reminded that the method of how the holding force is generated does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Therefore, the holding force is a contact pressure generated by elastic expansion of the tensioning element, and the holding force is applied to the connected constructive element is inserted into the tensioning element.

Regarding claim 53, the clamping sleeve **7** comprises a clamping sleeve, into which the constructive element to be connected is inserted in the axial direction. The clamping sleeve is partially relaxed. Applicant is reminded that functional "whereby" statement does not define any structure and accordingly cannot serve to distinguish. *In re Mason*, 114 USPQ 127, 44 CCPA 937 (1957).

Regarding claim 58, applicant is reminded that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Applicant is reminded that the structure of the clamping element has not being further limited but rather the constructive elements which are to be used with the connecting element has been limited.

Regarding claim 62, Renz et al. show a connecting element in combination with the constructive element **10** inserted in the tensioning element **7**. A section **11** of the at least one constructive element **10** is engaged with the tensioning element **7** is friction increased.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Renz et al., in view of the Publication entitled "Ti-Ni Shape Memory Alloys" by Duering et al..

Regarding claim 33, Renz et al., as discussed above, fail to disclose a titanium content of the nickel-titanium alloy is between about 49.7 to 50.7 at.%. Duering et al., teaches on page 1036 that Ti-Ni having a titanium content of 49.7 to 50.7 at.% are commercially available. Therefore, it would have been obvious matter of design choice to select an Ti-Ni alloy with a titanium content of 49.7 to 50.7 at.% as part of material choice.

Allowable Subject Matter

Claim 55 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

regarding claim 55, the prior art of record does not disclose or suggest a connecting element comprising an elastically deformable tensioning element comprising a clamping sleeve being in a stress-induced martensitic state having an oval cross section in the relaxed state; Julien, 6,530,564, teaches an element in Figure 22; however, the element is a supporting structure or element instead of a connecting element.

Response to Arguments

Applicant's arguments filed 1/23/04 have been fully considered but they are not persuasive.

Applicant has argued that Renz et al. teach a temperature-induced austenitic state contrary to "stress-induced state". This is not found persuasive as column 2 in lines 40-47 states that the alloy is chosen so that it allows stress-inducible martensitic microstructural transformation. The transformation is not caused by temperature change but stress.

Applicant has argued that Renz teaches "wide expansion without appreciable stress increase" and therefore Renz teaches the opposite of the martensitic state, i.e. austenitic state. This is not found persuasive as Renz refers to the austenitic state of the pseudoelastic behavior, which involves both states, i.e., martensitic state and austenitic state. When stress is applied, the alloy changes to a martensitic state. Applicant is urged to review the publication to Darel E. Hodgson, page 3, section "Thermomechanical Behavior".

Furthermore, applicant argued that Renz fails to teach against producing a holding force in the stress-induced martensitic state. This is not found persuasive as the conical thread produces an expansion force in the element thus the element transfers the force as a holding force.

Applicant has argued that Renz is not capable of applying a holding force, in an elastically expanded state, onto (to a position on) a constructive element that is inserted in the axial direction of the tensioning element. This is not found persuasive as the element applies a holding force, in an elastically expanded state (caused by the conical thread), onto a constructive element 5 that is inserted in an axial direction of the element.

Furthermore, applicant has argued that Renz fails to disclose elements that enable it to perform the claims invention. This argument fails to comply with 37

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CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Furthermore, applicant has not stated the elements not disclosed by Renz.

Applicant has argued that Renz fails to disclose the tension element being in a stress-induced state, but instead Renz teaches that the wide expansion occurs without appreciable stress increase. Applicant is urged to review the Abstract of the invention as it states that the austenitic state changes to martensitic state due to stresses-induced.

Applicant has argued that Duering fails to teach a connecting element comprising an elastically deformable tensioning element applying a holding force in an elastically expanded state onto a constructive element that is to be connected. In response to applicant's arguments against the reference, Duering, individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 703-308-8606. The examiner can normally be reached from 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on 703-308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final

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communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2168.



Anthony Knight
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Technology Center 3600

E.G.

March 5, 2004